

CLAIMS

1. A method of performing time drift compensation in a receiver (200),  
the method comprising the steps of:
  - receiving a signal, which comprises chips, at the receiver;
  - producing a control pulse (303) after having received a certain number of  
5 chips of the received signal;
  - controlling a variable delay applied to the received signal;
  - sending, to demodulation units (202, 203) in the receiver, a delayed signal in  
which chips have been omitted or duplicated on the basis of said control pulse;
  - supplying, to said demodulation units in the receiver, a compensation signal  
10 that indicates whether chips have been omitted or duplicated in the delayed signal;  
and
  - demodulating the delayed signal such that the demodulation units consider  
the omission or duplication of chips in the delayed signal.
- 15 2. The method according to claim 1, further comprising the step of  
synchronizing the compensation signal to the control pulse (303).
3. The method according to claim 1 or 2, further comprising the step of  
aligning said control pulse (303) with a symbol boundary.  
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4. The method according to any one of claims 1-3, wherein the received  
signal comprises both data chips and pilot chips and the step of demodulating is  
performed in a first (202) and a second (203) demodulation unit and further  
comprises the step of:
  - 25 demodulating the received pilot chips in the first demodulation unit to  
produce demodulated pilot chips and the received data chips in the second  
demodulation unit to produce demodulated data chips.

5. The method according to any one of the preceding claims, wherein the compensation signal is given a first value which indicates that a chip has been omitted in the delayed signal and a second value which indicates that a chip has been duplicated in the delayed signal.

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6. The method according to any one of the preceding claims, wherein the step of demodulating chips comprises the steps of:

des scramble the delayed chips; and  
despread the des scrambled chips.

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7. The method according to any one of claims 4-6, further comprising the step of:

integrating the demodulated pilot chips to create a pilot symbol and the demodulated data chips to create a data symbol;

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8. The method according to claim 7, wherein said first and second values of the compensation signal control scrambling codes and spreading codes sent to the demodulation units (202, 203) such that a chip is omitted in the respective code on reception of a compensation signal having a first value, and a chip is duplicated in the respective code on reception of a compensation signal having a second value, and wherein said first and second value of the compensation signal further control the integrators (206, 210) such that a chip is omitted in the integration on reception of the first value, and a chip is duplicated in the integration on reception of the second value.

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9. The method according to claim 8, further comprising the steps of:  
delivering, from the first demodulation unit (202) to the second demodulation unit (203), channel estimation information derived from the pilot symbol; and  
employing said channel estimation information at the second demodulation unit to improve said data symbol by taking into account channel parameters.

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10. A receiver (200) for performing time drift compensation, the receiver comprising:

a timer (212);  
a common delay unit (201); and  
demodulation units (202, 203); wherein  
the timer is arranged to produce a control pulse (303) after having received a  
5 certain number of chips of a received signal;  
the common delay unit is arranged to apply a variable delay to the received  
signal and thus send a delayed signal to the demodulation units in the receiver, in  
which delayed signal chips have been omitted or duplicated on the basis of said  
control pulse;  
10 the timer is further arranged to supply, to said demodulation units in the  
receiver, a compensation signal that indicates whether chips have been omitted or  
duplicated in the delayed signal; and  
the demodulation units are arranged to demodulate the delayed signal such  
that the demodulation units consider the omission or duplication of chips in the  
15 delayed signal.

11. The receiver (200) according to claim 10, wherein the timer (212) is  
further arranged to synchronize the compensation signal to the control pulse (303).  
20 12. The receiver (200) according to claim 10 or 11, wherein the timer  
(212) is further arranged to align said control pulse (303) with a symbol boundary.  
13. The receiver (200) according to any one of claims 10-12, wherein the  
received signal comprises both data chips and pilot chips and the demodulation is  
25 performed in a first (202) and a second (203) demodulation unit, the first  
demodulation unit being further arranged to demodulate the received pilot chips to  
produce demodulated pilot chips and the second demodulation unit being further  
arranged to demodulate the received data chips to produce demodulated data chips.  
30 14. The receiver (200) according to any one of claims 10-13, wherein the  
timer (212) is further arranged to give the compensation signal a first value which  
indicates that a chip has been omitted from the delayed signal and a second value  
which indicates that a chip has been duplicated in the delayed signal.

15. The receiver (200) according to any one of claims 10-14, wherein the demodulation units (202, 203) comprises:

5 descrambling code generators (204, 208) employed to descramble the delayed chips; and

despreaders code generators (205, 209) employed to despread the descrambled chips.

16. The receiver (200) according to any one of claims 10-15, wherein the 10 demodulation units (202, 203) comprises:

integrators (206, 210) arranged to integrate the demodulated pilot chips to create a pilot symbol and the demodulated data chips to create a data symbol.

17. The receiver (200) according to any one of claims 10-16, wherein said 15 first and second values of the compensation signal control scrambling codes (204, 208) and spreading codes (205, 209) supplied to the demodulation units (203, 203) such that a chip is omitted from the respective code on reception of a compensation signal having a first value, and a chip is duplicated in the respective code on reception of a compensation signal having a second value, and wherein said first and 20 second value of the compensation signals further control the integrators (206, 210) such that a chip is omitted in the integration on reception of the first value, and a chip is duplicated in the integration on reception of the second value.

18. The receiver (200) according to claim 17, further comprising:

25 a channel estimation integrator (207) arranged to deliver, from the first demodulation unit (202) to the second demodulation unit (203), channel estimation information derived from the pilot symbol, wherein said channel estimation information is employed at the second demodulation unit to improve said data symbol by taking into account channel parameters.